

CONSTRUCTION

MEMORANDUMS

MEMO NO. 52

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SUBJECT:

FIELD INSPECTION CONSTRUCTION STAFFING

23 CFR Section 302 requires State Transportation Authorities to be suitably equipped and organized to carry out the Federal Aid program and includes requiring that adequate personnel be provided for field inspection to ensure that quality highways are constructed. Each District should develop and implement procedures to ensure that projects are adequately staffed.

The Engineer determines the adequacy of staffing levels for a project. When assessing staffing levels the Engineer should consider the information contained herein as well as whether or not the project minimum testing requirements (MTRs) are being met. Keep the following in mind when determining adequate staffing levels for a project:

- Variations and adjustments in the Contractor's actual schedule can dramatically influence the staffing. In some occasions the staffing need is intensified while in others it is reduced.
- Traffic volumes, project length, physical features and construction type also have an effect on an inspector's mobility and ability to move around within projects.
- Quality and clarity of contract drawings. More staff may be needed to ensure correct interpretations.
- There are time frames within a project where inspection demands peak. Inspection demands within peak time frames vary depending on project specific circumstances (e.g. contractor equipment breakdowns, poor weather, contractor work schedules).
- Inspectors may be assigned full time to a project, and then supplemented with other project personnel as needed based on specific project needs (i.e. "just-in-time" staffing).
- Experience level also affects inspection needs. More experienced personnel can provide more inspection coverage with fewer people than a less experienced staff.
- Competency of the contractor can also affect staffing needs. Some contractors will require more comprehensive inspection than others.

All the above variables must be taken into account when determining the field inspection staffing needed for a project. It must also be kept in mind that staffing is **not** fixed and must be **reassessed** periodically throughout the project.

Staffing development is needed for the following situations:

1. Estimating staff for a proposed project.
2. Assigning staff to a project.
3. Forecasting staff needed at the resident/region and District level using the information developed in items 1 and 2.

Estimating staff for a proposed project.

As mentioned above, there are time frames within a project where inspection demands peak. Table 1 shows typical peak staffing requirements by project type.

Estimate staff as follows:

- 1) Determine project type.
- 2) Establish project start, project finish and peak demand time frames using engineering judgment and schedule information from previous projects of similar type.
- 3) Estimate the staff needed during peak time frames. The information presented in Table 1 can be used.
- 4) Estimate staff needed during off-peak time frames. Staffing needs will generally vary between one and three.
- 5) See “Assigning Staff to a Project” below once the project is awarded and the contractor’s CPM schedule has been submitted.

Table 1
Typical Peak Staffing Requirements by Project Type

Project Type	Average Peak Staffing	Peak Staffing Range
Pavement Rehabilitation		
CRABs	5.0	3.0 – 6.0
Mill	4.0	3.0 – 6.0
Overlay	3.0	2.0 – 5.0
Concrete Pavement Repair	4.0	3.0 – 5.0
Road Realignment	6.0	4.0 – 8.0
Road Reconstruction	5.0	5.0 – 7.0
Bridges		
Simple	2.0	1.0 – 3.0
Average	3.0	2.0 – 5.0
Complex	5.0	3.0 – 7.0
Sealcoat	5.0	3.0 – 7.0
Guardrail	2.0	1.0 – 2.0
Signalization	1.0	1.0 – 3.0

Notes:

1. Field inspection staffing needs were assessed based on contract types and work activities using recent ITD project data (1999 to March 2002).
2. Projects were grouped into types based on a review of project descriptions contained in the Construction Status Reports.
3. For each project, field inspection information was obtained from the ITD detailed project database.
4. The information was then evaluated to determine typical peak staffing requirements (average and range) as shown in Table 1.

Assigning staff to a project.

Assign staff as follows:

1. Assign staff to a project based on the activities shown on the contractor's CPM schedule. Some contractors also provide two-week supplemental (i.e. "look-ahead") detailed schedules as well and these can be very helpful.
2. As necessary, reevaluate and adjust staff assignments at schedule updates or when work is added or deleted by change order.

Forecasting staff needed at the resident/region and District level.

Estimated and assigned staff information can be used to forecast staffing needs so that adequate staffing is achieved across concurrent projects. The concern is inspection demands peaking during the same time frame across projects being administered in a region and District.

Forecasting is used to help the resident/region and District evaluate and balance inspection resources in advance of when they are required to mitigate the potential of understaffed projects.

Occasional understaffing is not detrimental to the overall quality of the project. Of greater concern is a chronically understaffed project. A chronically understaffed project increases the likelihood of missed sampling and testing and uncorrected shoddy workmanship. An overstaffed project consumes resources that may be used more productively elsewhere. Personnel committed on an overstaffed project are unavailable if a concurrent understaffed project exist, an obviously poor use of resources.

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